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## PROVISIONAL APPLICATION FOR PATENT COVER SHEET

This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 CFR 1.53 (c).

INVENTOR(S)					
Given Name (first and middle [if any])		Family Name or Surname		Residence (City and either State or Foreign Country)	
Andrew Gary Boyd		Silver Stephens		Dallas, TX Allen, TX	
<input type="checkbox"/> Additional inventors are being named on the _____ separately numbered sheets attached hereto					
TITLE OF THE INVENTION (280 characters max) Enhanced Services/Call Delivery Using the GPRS/IS-136 Location					
Direct all correspondence to: CORRESPONDENCE ADDRESS					
<input checked="" type="checkbox"/> Customer Number		021498		Place Customer Number Bar Code Label here	
OR		Type Customer Number here			
<input checked="" type="checkbox"/> Firm or Individual Name		Kenneth W. Bolvin, Northern Telecom			
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Country		US	Telephone	(972)685-7096	Fax (972)-685-3030
ENCLOSED APPLICATION PARTS (check all that apply)					
<input checked="" type="checkbox"/> Specification Number of Pages		7		<input type="checkbox"/> Small Entity Statement	
<input type="checkbox"/> Drawing(s) Number of Sheets				<input type="checkbox"/> Other (specify) _____	
METHOD OF PAYMENT OF FILING FEES FOR THIS PROVISIONAL APPLICATION FOR PATENT (check one)					
<input type="checkbox"/> A check or money order is enclosed to cover the filing fees				FILING FEE AMOUNT (\$)	
<input checked="" type="checkbox"/> The Commissioner is hereby authorized to charge filing fees or credit any overpayment to Deposit Account Number: 50-0210				150	
The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.					
<input checked="" type="checkbox"/> No.					
<input type="checkbox"/> Yes, the name of the U.S. Government agency and the Government contract number are: _____					

Respectfully submitted,

SIGNATURE Kenneth W. Bolvin

Date 7/24/98

TYPED or PRINTED NAME Kenneth W. Bolvin

REGISTRATION NO. 34,125

TELEPHONE (972) 685-7096

(if appropriate)  
Docket Number: RR2574

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Silver, Andrew; Stephens, Gary Boyd  
Serial No.: Unknown  
Filed: 07/24/1998  
For: Enhanced Services/Call Delivery Using the GPRS/IS-136 Location

Assistant Commissioner for Patents  
Washington, D.C. 20231

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Signature of person mailing paper or fee

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Invention disclosure submission  
Complete all sections and send to the Nortel Patent Dept at:  
OTTAWA, Canada: Patent Dept., 0265, NTPAT  
or HARLOW, UK: Patent Dept., HAL05  
or RICHARDSON, USA: Patent Dept., Mail Stop C-0419, RICH1

No. RR2574  
Rec'd. 21 Jul 98  
Attny/Agent

**NORTEL**  
NORTHERN TELECOM

**Invention Title**

Enhanced Services/Call Delivery using the GPRS/IS-136 Location

Correspondence will be directed to the first-named inventor only.

<b>(1) Full legal name of first inventor (include middle initial)</b>				<b>Residence and post office address if different</b>	
Silver Andrew N/A				10661 Steppington DR #1087 Dallas, TX 75230	
Name usually known as: Andrew					
Global ID 0523101					
Phone 6-445-6334	Location RICHARD	Department 5889	Mailstop	Occupation PLM	Fax 6-444-3881
Signature			Date	Citizen of CANADA	

<b>(2) Name of supervisor or divisional head</b>		<b>(5) Project Number</b>	
Victor Quintana			
<b>Name of AVP Reported to:</b>		<b>(6) Indicate your LOB</b>	
Alastair Westgarth		Wireless Networks	
Signature		Date	<b>If Advanced Technology, please indicate which group.</b> Please Make a Selection

**Technical field**

<b>(3) Date of first written description</b>		<b>Key words for searching</b>	
		GPRS, IS-136, IS-136+, ANSI-41, SGSN	
<b>Has this invention been discussed with others? If so, please complete.</b>			
Outside Nortel	To Whom?	<b>Are you aware of any imminent future disclosures? Please detail.</b> Yes, this idea will be proposed as part of a standards contribution for the GPRS/IS-136 mobile data feature.	
	When?		
Was there a Non-Disclosure Agreement in place?			
Inside Nortel	To Whom?		
	When?		

<b>(4) Which products will use this invention?</b>		<b>(7) Is the invention relevant to a Standards activity?</b>	
North American standards wireless switch products.		yes	
		<b>If so give details:</b> We will be proposing that this idea be incorporated into the GPRS/IS-136 standards in a TR45.2 meeting that will be held July 28th. That is next week!!!	
		<b>(8) Does this invention arise from any arrangement involving any external organization?</b> no	
		Organization	
		Contract no.	

**(a) Brief description of the invention**

Enhanced Services using the GPRS/IS-136 Location. The example that prompted this invention is using the PCCH location (i.e. the location of the mobile in the data network) to provide enhanced prediction of where the mobile will likely appear during voice transactions for call delivery. The capability can also be used to provide location based services. Since phones that are in data mode are only known by location in the data network, any location based services will need to be based on the knowledge of where the mobile is in the data network, even if they are voice based services. The general idea is to use the GPRS location information to provide ANSI-41 location based services. In this case, we are including call delivery in location based services, because call delivery can take advantage of this information to provide an enhanced call delivery, providing faster call delivery with less network resources utilized.

**(b) What is the problem solved by the invention?**

If this idea is not utilized, location based services will not function properly when the mobile is in data mode.

**(c) What other solutions have been tried and what were their shortcomings?**

I am not aware of any other solutions that have been considered/presented to take advantage of the mobile's location in the data network to provide ANSI-41/voice location based services. Note that the GPRS/IS-136 is the first data standard that this might apply to, but not the only one. The GPRS/IS-136 architecture is currently being developed. Due to the architecture being so new, it is unlikely others have tried to resolve all the implications yet.

**d) What are the specific elements or steps that solved the problem. Please provide high level details.**

There is a variety of situations here, since the invention is using data based location information in the voice network to provide various location based services including call delivery. We will describe two.

**Call Delivery:**

For call delivery, when we are going to page the mobile, the SGSN will provide the last known location information to the voice network, which will use the information to setup the call ahead of time to the switch that will probably receive the mobile's page response. This both saves resources and decreases elapsed time before the mobile starts ringing. It can also be used to provide location based terminating services.

**Location based SMS:**

The current location in the data network will be needed to provide SMS messages that are intended for mobiles in a particular area. For example, if a carrier wants to inform users on the highway that there is a wreck up ahead, the carrier will need to know which mobiles in the data network are currently on/near that highway.

**What is the commercial value of the invention to Nortel and Nortel's major competitors? (see guidelines)**

It is clear that there are many situations evolving in the network in which utilizing the current location of the mobile is required. For many location based services, using that location will be required or the service will not be available for those mobiles. Thus, this capability is of high value for any location based service that the user wishes to receive while in data mode.

This invention is also useful to provide enhancements to the network operations, like the reduced elapsed time and saved resources that can be provided during call delivery scenarios. This is particularly important in the new GPRS/IS-136 architecture because it is anticipated that the new architecture will otherwise be slower than a standard voice network (for termination), thus diminishing the attractiveness of the new data offering.

## Additional Inventors / Contractor Information

No. RR2574

(1) Full legal name of first inventor (include middle initial)				Residence address (and post office address if different)	
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Fax 6-444-3881					
Signature		Date		Citizen of CANADA	

<b>Contractor Information</b>		Any other agreement(s) with your agency.	
Agency worked for		Please Make a Selection	
Non disclosure agreement with Nortel Please Make a Selection		Please specify	
Exhibit B of the Master Services agreement with your agency Please Make a Selection			

(1) Full legal name of 2nd inventor (include middle initial)				Residence address (and post office address if different)	
Stephens Gary Boyd 1542444				822 Deerlake DR Allen, TX 75002-5055	
Phone 6-444-4650		Location RICHARD	Department 2K60	Mailstop	Occupation Senior Advisor
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Signature		Date		Citizen of USA	

<b>Contractor Information</b>		Any other agreement(s) with your agency.	
Agency worked for		Please Make a Selection	
Non disclosure agreement with Nortel Please Make a Selection		Please specify	
Exhibit B of the Master Services agreement with your agency Please Make a Selection			

(1) Full legal name of 3rd inventor (include middle initial)				Residence address (and post office address if different)	
Phone		Location	Department	Mailstop	Occupation
Fax					
Signature		Date		Citizen of	

<b>Contractor Information</b>		Any other agreement(s) with your agency.	
Agency worked for		Please Make a Selection	
Non disclosure agreement with Nortel Please Make a Selection		Please specify	
Exhibit B of the Master Services agreement with your agency Please Make a Selection			

(1) Full legal name of 4th inventor (include middle initial)				Residence address (and post office address if different)	
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Fax					
Signature		Date		Citizen of	

<b>Contractor Information</b>		Any other agreement(s) with your agency.	
Agency worked for		Please specify	
Non disclosure agreement with Nortel Please Make a Selection		Please Make a Selection	
Exhibit B of the Master Services agreement with your agency Please Make a Selection			

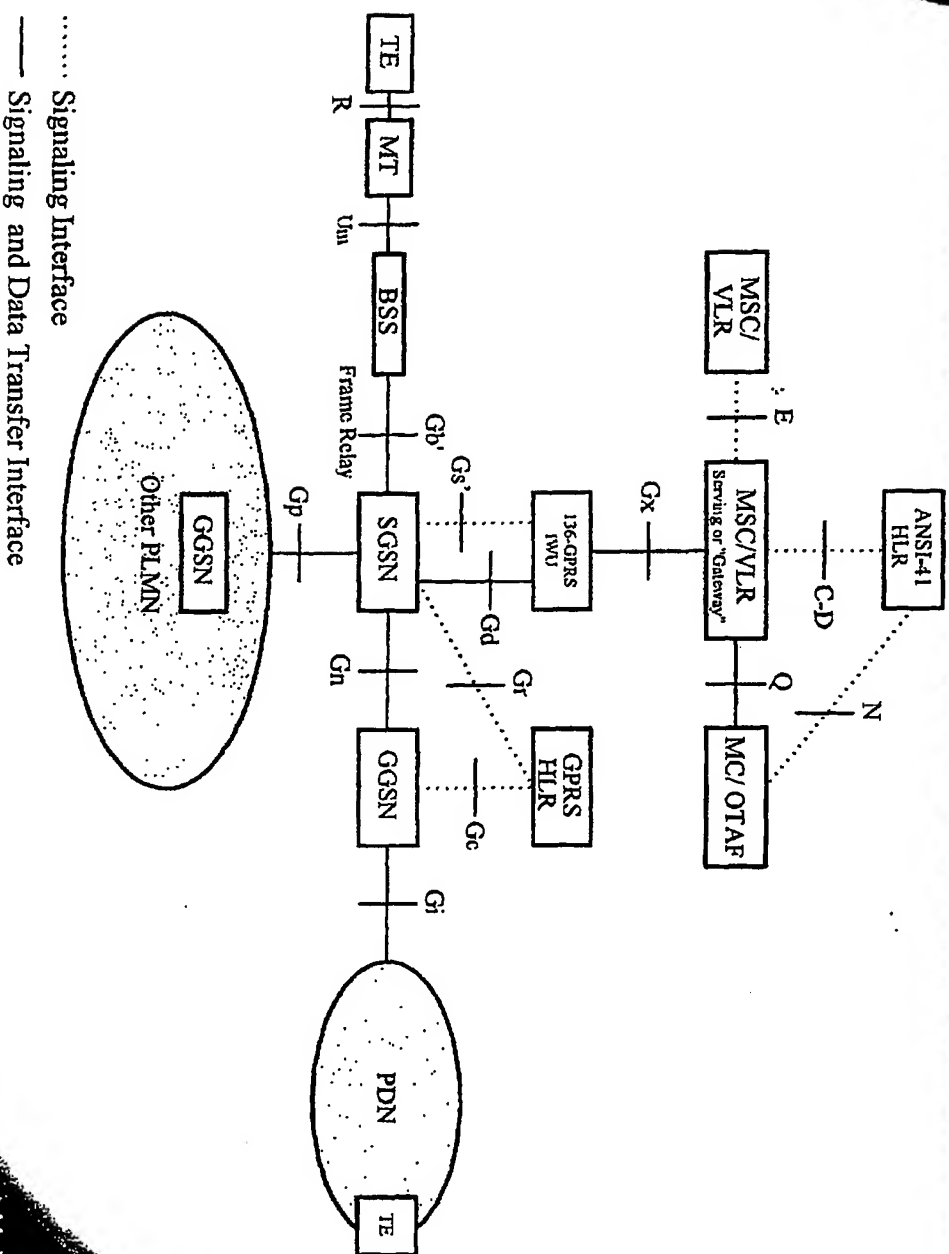
(1) Full legal name of 5th inventor (include middle initial)				Residence address (and post office address if different)	
Phone	Location	Department	Mailstop	Occupation	Fax
Signature		Date		Citizen of	
Contractor Information				Any other agreement(s) with your agency.	
Agency worked for				Please Make a Selection	
Non disclosure agreement with Nortel Please Make a Selection				Please specify	
Exhibit B of the Master Services agreement with your agency Please Make a Selection					

(1) Full legal name of 6th inventor (include middle initial)				Residence address (and post office address if different)	
Phone	Location	Department	Mailstop	Occupation	Fax
Signature		Date		Citizen of	
Contractor Information				Any other agreement(s) with your agency.	
Agency worked for				Please Make a Selection	
Non disclosure agreement with Nortel Please Make a Selection				Please specify	
Exhibit B of the Master Services agreement with your agency Please Make a Selection					

(1) Full legal name of 7th inventor (include middle initial)				Residence address (and post office address if different)	
Phone	Location	Department	Mailstop	Occupation	Fax
Signature		Date		Citizen of	
Contractor Information				Any other agreement(s) with your agency.	
Agency worked for				Please Make a Selection	
Non disclosure agreement with Nortel Please Make a Selection				Please specify	
Exhibit B of the Master Services agreement with your agency Please Make a Selection					

(1) Full legal name of 8th inventor (include middle initial)				Residence address (and post office address if different)	
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Signature		Date		Citizen of	
Contractor Information				Any other agreement(s) with your agency.	
Agency worked for				Please Make a Selection	
Non disclosure agreement with Nortel Please Make a Selection				Please specify	
Exhibit B of the Master Services agreement with your agency Please Make a Selection					

# GPRS/136+ Reference Model





# Guidelines for the use of the

setting up the call in response to the location, the call being set up prior to paging by the radiotelephone.

the wireless network providing selective information to the radiotelephone in response to the location.